REMARKS

The Examiner is thanked for the thorough examination of the present application and the indication that claims 4, 5, 12, 13, 20, and 21 define allowable subject matter. The Office Action, however, tentatively rejected all remaining claims. Applicant respectfully requests reconsideration and withdrawal of the rejections for at least the reasons that follow.

Claim 1 is rejected under 35 U.S.C. 103(a) as alleged anticipated over Kawabe et al. (U.S. 2003/0169247) in view of Yamada, Atsushi (US 2003/0169226). Applicant respectfully disagrees for at least the following reasons.

Claim 1 recites:

> 1. A driving circuit for outputting a video signal to control a liquid crystal display panel according to an image control signal provided by a host, the liquid crystal display panel including a plurality of light emitting elements and display cells, the display cells respectively connecting to a plurality of data electrodes and gate electrodes, the driving circuit comprising:
>
> a gate driver outputting scan signals to the gate electrodes;
>
> ***a data driver outputting*** the video signals to the data electrodes according to the image control signal, and ***a voltage controlling signal corresponding to a brightness adjustment signal;*** and
>
> ***a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.***

(*Emphasis added.*) Claim 1 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above. In this regard, neither Kawabe nor Yamada teaches, suggests or discloses a data driver outputting a voltage controlling signal corresponding to a brightness adjustment signal. Furthermore, neither Kawabe nor Yamada teaches, suggests or discloses a driving

voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

Yamada does not disclose a **data driver outputting a voltage controlling signal** corresponding to a brightness adjustment signal. In addition, Yamada discloses a control reference voltage that is generated **according to temperature characteristic of the luminescent brightness**, not **according to the voltage controlling signal.** In page 3, lines 9-17 of the Office Action, Examiner admits that Kawabe fails to disclose that a data driver outputting a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal, but deems that Yamada discloses a data driver outputting a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal. Applicant respectfully disagrees.

First, Applicant would like to respectfully point out that the difference between 'control reference voltage' as stated in Yamada and 'voltage controlling signal' as recited in Claim 1. Please refer to page 2, paragraph 25, lines 1-10 of Yamada, the control reference voltage of Yamada is generated by a control reference voltage generation circuit, not output from a data drive. Moreover, throughout Yamada, Yamada does not disclose a data driver, that outputs the video signals to the data electrodes **according to the image control signal, outputs a voltage controlling signal corresponding to a brightness adjustment signal**.

Secondly, Applicant would also like to respectfully point out that the difference between 'control reference voltage' as stated in Yamada and 'driving voltage' as recited in claim 1. Referring again to page 2, paragraph 25, lines 1-10 of Yamada, Yamada discloses that **a control reference voltage generation circuit**, that is responsive to brightness around the liquid crystal display, **generates a control reference voltage according to temperature characteristic of the luminescent brightness**. Thus, the control reference voltage of Yamada is generated **according to temperature characteristic of the luminescent brightness**, not generated **according to the voltage controlling signal that has been outputted from data driver as the driving voltage recited in Claim 1**.

For at least this reason, claim 1 is allowable over the cited reference. Insofar as claim 1 is allowable, claims 2-8, which depend from claim 1, are also allowable on their own merits in claiming additional elements not included in claim 1.

Independent claim 9 stands rejected under 35 U.S.C. 103(a) as allegedly anticipated over Kawabe et al. (U.S. 2003/0169247) in view of Yamada, Atsushi (US 2003/0169226). Applicant respectfully disagrees for at least the following reasons.

> Claim 9 recites:
> 9. A driving circuit for outputting a video signal to control a liquid crystal display panel according to an image control signal provided by a host, the liquid crystal display panel including a plurality of light emitting elements and display cells, the display cells respectively connecting to a plurality of data electrodes and gate electrodes, the driving circuit comprising:
> ***a gate driver outputting*** scan signals to the gate electrodes, and
> a ***voltage controlling signal corresponding to a brightness adjustment signal***;

a data driver outputting the video signals to the data electrodes according to the image control signal; and

a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

(*Emphasis added.*) Claim 1 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above. In this regard, neither Kawabe nor Yamada teaches, suggests or discloses a gate driver outputting a voltage controlling signal corresponding to a brightness adjustment signal. Furthermore, neither Kawabe nor Yamada teaches, suggests or discloses a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

Referring to page 4, lines 14-20, the Office Action admits Kawabe fails to disclose that a gate driver outputting a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal, but deems that Yamada discloses a gate driver outputting a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal. Applicant respectfully asserts that the Office Action's position is misplaced.

First, as described above, the control reference voltage of Yamada is generated by a control reference voltage generation circuit, and is not output from a gate drive. Throughout Yamada, Yamada does not disclose **a gate driver, that outputs scan signals to the gate electrodes, outputs a voltage controlling signal corresponding to a brightness adjustment signal**.

Secondly, as described above, the control reference voltage of Yamada is generated **according to temperature characteristic of the luminescent brightness**, not **according to the voltage controlling signal that has been outputted from gate driver as the driving voltage recited in Claim 9**.

For at least these reasons, claim 9 is allowable over the cited reference. Insofar as claim 9 is allowable, claims 10-16, which depend from claim 9, are also allowable on their own merits in claiming additional elements not included in claim 9.

Claim 17 stands rejected under 35 U.S.C. 103(a) as allegedly anticipated over Kawabe et al. (U.S. 2003/0169247) in view of Yamada, Atsushi (US 2003/0169226) as applied to claims 1, 9 above, and further in view of Tamaoku, Satoshi et al.(US 2005/0168987). Applicant respectfully disagrees for at least the following reasons.

Claim 17 recites:

> 17. A liquid crystal display for displaying images according to an image control signal provided by a host, comprising:
> a liquid crystal display panel comprising a plurality of display cells respectively connected to a plurality of data electrodes and gate electrodes;
> ***a panel driver outputting scan signals to the gate electrodes, the video signals to the data electrodes according to the image control signal, and a voltage controlling signal corresponding to a brightness adjustment signal***;
> a driving voltage generator outputting a driving voltage according to the voltage controlling signal; and
> a plurality of light emitting elements connected in serial and coupled to the driving voltage generator generating brightness corresponding to the driving voltage output by the driving voltage generator.

(*Emphasis added.*) Claim 17 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above. In this regard, neither Kawabe, Yamada or Tamaoki teaches, suggests or discloses a panel driver outputting scan signals to the gate electrodes, the video signals to the data electrodes according to the image control signal, and a voltage controlling signal corresponding to a brightness adjustment signal. Furthermore, none of Kawabe, Yamada, or Tamaoki teaches, suggests or discloses a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

Referring to page 6, lines 18-20, the Office Action admits Kawabe fails to disclose that a panel driver outputting scan signals to the gate electrodes, the video signals to the data electrodes according to the image control signal, and a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal, but deems that Yamada discloses a panel driver outputting scan signals to the gate electrodes, the video signals to the data electrodes according to the image control signal, and a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal. Furthermore, referring to page 6, line 22 to page 7, line 3, the Office Action admits Kawabe fails to disclose that a plurality of light emitting elements connected in serial, but deems that Tamaoku discloses that a plurality of light emitting elements connected in serial are used as backlight for LCD. Applicant respectfully asserts that this position is misplaced.

First, as described above, the control reference voltage of Yamada is generated by a control reference voltage generation circuit, not output from a panel drive. Throughout Yamada, Yamada does not disclose **a panel driver, that outputs scan signals to the gate electrodes and outputs the video signals to the data electrodes according to the image control signal, outputs a voltage controlling signal corresponding to a brightness adjustment signal**.

Secondly, as described above, the control reference voltage of Yamada is generated **according to temperature characteristic of the luminescent brightness**, not **according to the voltage controlling signal that has been outputted from panel driver as the driving voltage recited in claim 17**.

In addition, referring to Fig. 19 and page 13, paragraph 148 of Tamaoku, the light emitting elements of Tamaoku is connected to a driving circuit that drives the light emitting elements, and is not coupled to the driving voltage generator as recited in claim 17, wherein **the driving voltage generator as recited in claim 17 outputs a driving voltage according to the voltage controlling signal, and wherein the voltage controlling signal is outputted from a panel driver as described above.**

In summary, none of Kawabe, Yamada or Tamaoki discloses **a panel driver outputting a voltage controlling signal** corresponding to a brightness adjustment signal, and since none of them discloses a driving voltage generator outputs a driving voltage **according to the voltage controlling signal** and a plurality of light emitting elements connected in serial and **coupled to the driving voltage generator**.

For at least these reasons, claim 17 is allowable over the cited references. Insofar as claim 17 is allowable, claims 18-24, which depend from claim 17, are also allowable on their own merits in claiming additional elements not included in claim 17.

For at least the foregoing reasons, all outstanding rejections should be withdrawn. In addition to the foregoing reasons, Applicant (below) notes additional reasons why some of the dependent claims further define over the cited art.

Claims 3, 11 and 19 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Kawabe et al. (U.S. 2003/0169247) in view of Yamada, Atsushi (US 2003/0169226) as applied above, and further in view of Sono (US 2003/0117361). Applicant respectfully traverses the rejections for at least the following additional reasons.

Claims 3, 11, and 19 recite:

> 3. The driving circuit as claimed in claim 1, ***wherein the data driver adjusts the ratio between the periods of the high voltage level and the low voltage level according to the brightness adjustment signal***.
>
> 11. The driving circuit as claimed in claim 9, ***wherein the gate driver adjusts the ratio between the periods of the high voltage level and the low voltage level according to the brightness adjustment signal***.
>
> 19. The liquid crystal display as claimed in claim 17, ***wherein the panel driver adjusts the ratio between the periods of the high voltage level and the low voltage level according to the brightness adjustment signal***.

Applicant respectfully asserts that claims 3, 11, and 19 are allowable for at least the reason that none of Kawabe, Yamada, or Sono discloses that the data driver (gate

driver, panel driver) adjusts the ratio between the periods of the high voltage level and the low voltage level according to the brightness adjustment signal.

Referring to page 1 paragraph 12 to page 2, paragraph 13 of Sono, Sono discloses that a polarization angle adjustor for **adjusting the deflection angle of a digital liquid crystal display device.** Sono also discloses that there are two square waves added and applied as the driving signal of the polarization angle adjustor. Thus, the polarization angle adjustor disclosed by Sono is used for **adjusting the deflection angle of a digital liquid crystal display device**, **not for adjusting the ratio between the periods of the high voltage level and the low voltage level of the two square waves. Furthermore, since the two square waves are applied as the driving signal of the polarization angle adjustor, the polarization angle adjustor will not adjusts the periods of their high voltage level and their low voltage level.**

In addition, since Sono does not disclose a brightness adjustment signal, Sono does not disclose that the data driver (gate driver, panel driver) adjusts the ratio between the periods of the high voltage level and the low voltage level **according to the brightness adjustment signal.** Both of which comparisons are known to be substantially different to those with ordinary skill in the art.

For at least this additional reason, claims 3, 11, and 19 are allowable over the cited references.

Claims 7, 15 and 23 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Kawabe et al. (U.S. 2003/0169247) in view of Yamada, Atsushi (US 2003/0169226) as applied above, and further in view of Sono(US 2003/0117361).

Applicant respectfully traverses the rejections for at least the following additional reasons.

Claims 7, 15, and 23 each further recite the feature of: "wherein the data driver adjusts the ratio between the periods of the high voltage level and the low voltage level of the voltage controlling signal according to the voltage level of the second terminal." None of Kawabe, Yamada and Sono discloses that the data driver (gate driver, panel driver) adjusts the ratio between the periods of the high voltage level and the low voltage level according to the voltage level of the second terminal.

As described above, the polarization angle adjustor disclosed by Sono is used for **adjusting the deflection angle of a digital liquid crystal display device**, **not for adjusting the ratio between the periods of the high voltage level and the low voltage level of the two square waves. Furthermore, since the two square waves are applied as the driving signal of the polarization angle adjustor, the polarization angle adjustor will not adjusts the periods of their high voltage level and their low voltage level.**

In addition, since Sono does not disclose a second terminal, Sono does not disclose that the data driver (gate driver, panel driver) adjusts the ratio between the periods of the high voltage level and the low voltage level **according to the voltage level of the second terminal.** Both of which comparisons are known to be substantially different to those with ordinary skill in the art. For at least these additional reasons, claims 7, 15, and 23 are allowable over the cited references.

CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this submission. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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